

WE CLAIM:

1. A device for determining release rates of volatile contaminants from soils comprising:

a transparent reactor vessel comprising sealable means for introducing at least one volatile liquid sample into said transparent reactor vessel;

at least one sorbent contained within said transparent reactor vessel; and separation means for preventing direct contact between said at least one sorbent and any soil/NAPL complex present in said transparent reactor vessel, said separation means permitting passage of solvent soluble constituents to be sorbed by said at least one sorbent.

2. A device in accordance with Claim 1, wherein said transparent reactor vessel comprises stirring means for stirring a contents of said transparent reactor vessel.

3. A device in accordance with Claim 1, wherein said separation means comprises at least one dialysis bag.

4. A device in accordance with Claim 1, wherein said at least one sorbent is selected from the group consisting of sorptive resins, charcoal, alumina, ion exchange resins and mixtures thereof.

5. A device in accordance with Claim 2, wherein said stirring means comprises at least one of a magnetic system and a sonication system.

6. A device in accordance with Claim 1, wherein said sealable means comprises at least one septum adapted to receive at least one syringe suitable for adding and removing volatile liquid samples from said transparent reactor vessel.

7. A method for measuring release rates of contaminants in at least one of a fast release mode and a slow release mode comprising the steps of:

introducing a volatile liquid sample into a transparent reactor vessel comprising sealable means for introducing said at least one volatile liquid sample into said transparent reactor vessel, at least one sorbent contained within said transparent reactor vessel, and separation means for preventing direct contact between said at least one sorbent and said at least one volatile liquid sample in said transparent reactor vessel, whereby substantially zero headspace is maintained within said transparent reactor vessel;

passing at least one solvent soluble constituent present in said at least one volatile liquid sample through said separation means, resulting in sorption of said at least one solvent soluble constituent by said at least one sorbent; and

removing said at least one solvent soluble constituent from said at least one sorbent through said separation means.

8. A method in accordance with Claim 7, wherein said at least one volatile liquid sample has a solids to solvent ratio in a range of about 260:1 to about 1:1.

9. A method in accordance with Claim 7, wherein said at least one volatile liquid sample is mixed by at least one of magnetic stirring, mechanical agitation and sonication.

10. A method in accordance with Claim 7, wherein said separation means comprises at least one dialysis bag.

11. A method in accordance with Claim 7, wherein said at least one volatile liquid sample is introduced into said transparent reactor vessel without opening said transparent reactor vessel.

12. A method in accordance with Claim 7, wherein said at least one solvent soluble constituent is removed from said sorbent without opening said transparent reactor vessel.

13. A method in accordance with Claim 10, wherein said at least one dialysis bag has a molecular weight cutoff in a range of about 5000 to about 200,000.